

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Ma, et al.

Serial No.: 10/784,904

Confirmation No.: Unknown

Filed: February 23, 2004

For: Gate Electrode Dopant
Activation Method for
Semiconductor
Manufacturing

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Group Art Unit: Unknown

Examiner: Unknown

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

**CERTIFICATE OF MAILING**  
**37 CFR 1.8**

I hereby certify that this correspondence is being deposited on March 31, 2004 with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450. 1

3/31/04  
Date

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The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

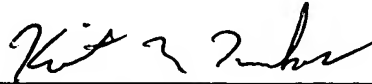
While the information submitted in this Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/APPM/8830/KMT.

Respectfully submitted,



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Attorney for Applicant(s)



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# **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1

of

5

Application Number

10/784,904

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First Named Inventor

Ma, et al.

Group Art Unit

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## U.S. PATENT DOCUMENTS

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|--------------------|-----------------------|------------------------------------------|--------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------|
|                    |                       | Number-Kind Code <sup>2</sup> (if known) |                                |                                                    |                                                                                 |
|                    | A1                    | US-6645838                               | 11/11/2003                     | Talwar, et al.                                     |                                                                                 |
|                    | A2                    | US-6635588                               | 10/21/2003                     | Hawryluk, et al.                                   |                                                                                 |
|                    | A3                    | US-6559520                               | 05/06/2003                     | Matsuki, et al.                                    |                                                                                 |
|                    | A4                    | US-6544900                               | 04/08/2003                     | Raaijmakers, et al.                                |                                                                                 |
|                    | A5                    | US-6458718                               | 10/01/2002                     | Todd                                               |                                                                                 |
|                    | A6                    | US-6410463                               | 06/25/2002                     | Matsuki                                            |                                                                                 |
|                    | A7                    | US-6387761                               | 05/14/2002                     | Shih, et al.                                       |                                                                                 |
|                    | A8                    | US-6383956                               | 05/07/2002                     | Hawryluk, et al.                                   |                                                                                 |
|                    | A9                    | US-6383955                               | 05/07/2002                     | Matsuki, et al.                                    |                                                                                 |
|                    | A10                   | US-6358829                               | 03/19/2002                     | Yoon, et al.                                       |                                                                                 |
|                    | A11                   | US-6352945                               | 03/05/2002                     | Matsuki, et al.                                    |                                                                                 |
|                    | A12                   | US-6348420                               | 02/19/2002                     | Raaijmakers, et al.                                |                                                                                 |
|                    | A13                   | US-6303476                               | 10/16/2001                     | Hawryluk, et al.                                   |                                                                                 |
|                    | A14                   | US-6284686                               | 09/04/2001                     | Marlor                                             |                                                                                 |
|                    | A15                   | US-6232196                               | 05/15/2001                     | Raaijmakers, et al.                                |                                                                                 |
|                    | A16                   | US-6025627                               | 02/15/2000                     | Forbes, et al.                                     |                                                                                 |
|                    | A17                   | US-5908307                               | 06/01/1999                     | Talwar, et al.                                     |                                                                                 |
|                    | A18                   | US-5807792                               | 09/15/1998                     | Ilg, et al.                                        |                                                                                 |

## FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No. <sup>1</sup> | Foreign Patent Document                                                           | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines,<br>Where Relevant Passages or<br>Relevant Figures Appear | T <sup>6</sup> |
|--------------------|-----------------------|-----------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------|----------------|
|                    |                       | Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known) |                                |                                                    |                                                                                 |                |
|                    | B1                    | WO 02/097864                                                                      | 12/05/2002                     | ASM America, Inc.                                  |                                                                                 |                |
|                    | B2                    | WO 02/080244                                                                      | 10/10/2002                     | ASM America, Inc.                                  |                                                                                 |                |
|                    | B3                    | WO 02/065525                                                                      | 08/22/0002                     | ASM America, Inc.                                  |                                                                                 |                |
|                    | B4                    | WO 02/065517                                                                      | 08/22/2002                     | ASM America, Inc.                                  |                                                                                 |                |
|                    | B5                    | WO 02/065516                                                                      | 08/22/2002                     | ASM America, Inc.                                  |                                                                                 |                |

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|                    | A19                   | US-5796116                               | 08/18/1998                     | Nakata, et al.                                     |                                                                                 |
|                    | A20                   | US-5693139                               | 12/02/1997                     | Nishizawa, et al.                                  |                                                                                 |
|                    | A21                   | US-5674304                               | 10/07/1997                     | Fukada, et al.                                     |                                                                                 |
|                    | A22                   | US-5527733                               | 06/18/1996                     | Nishizawa, et al.                                  |                                                                                 |
|                    | A23                   | US-5480818                               | 01/02/1996                     | Matsumoto, et al.                                  |                                                                                 |
|                    | A24                   | US-5469806                               | 11/28/1995                     | Mochizuki, et al.                                  |                                                                                 |
|                    | A25                   | US-5374570                               | 12/20/1994                     | Nasu, et al.                                       |                                                                                 |
|                    | A26                   | US-5372860                               | 12/13/1994                     | Fehlner, et al.                                    |                                                                                 |
|                    | A27                   | US-5294286                               | 03/15/1994                     | Nishizawa, et al.                                  |                                                                                 |
|                    | A28                   | US-4834831                               | 05/30/1989                     | Nishizawa, et al.                                  |                                                                                 |
|                    | A29                   | US-20030082300                           | 05/01/2003                     | Todd, et al.                                       |                                                                                 |
|                    | A30                   | US-20030045074                           | 03/06/2003                     | Seibel, et al.                                     |                                                                                 |
|                    | A31                   | US-20030036268                           | 02/20/2003                     | Brabant, et al.                                    |                                                                                 |
|                    | A32                   | US-20030022528                           | 01/30/2003                     | Todd                                               |                                                                                 |
|                    | A33                   | US-20020197831                           | 12/26/2002                     | Todd, et al.                                       |                                                                                 |
|                    | A34                   | US-20020173130                           | 11/21/2002                     | Pomerode, et al.                                   |                                                                                 |
|                    | A35                   | US-20020173113                           | 11/21/2002                     | Todd                                               |                                                                                 |
|                    | A36                   | US-20020168868                           | 11/14/2002                     | Todd                                               |                                                                                 |

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|                    | B6                    | WO 02/065508                                                                      | 08/22/2002                     | ASM America, Inc.                                  |                                                                                 |                |
|                    | B7                    | WO 02/064853                                                                      | 08/22/2002                     | ASM America, Inc.                                  |                                                                                 |                |
|                    | B8                    | WO 01/41544                                                                       | 06/14/2001                     | ASM America, Inc.                                  |                                                                                 |                |
|                    | B9                    | WO 98/20524                                                                       | 05/14/1998                     | Pacific Solar Pty.<br>Limited                      |                                                                                 |                |
|                    | B10                   | JP 63-062313 (Abstract Only)                                                      | 03/18/1988                     | Fujitsu, Ltd.                                      |                                                                                 |                |

Examiner

Date Considered

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Sheet 1 of 5

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|                        |                        |
|------------------------|------------------------|
| Application Number     | 10/784,904             |
| Filing Date            | February 23, 2004      |
| First Named Inventor   | Ma, et al.             |
| Group Art Unit         | Unknown                |
| Examiner Name          | Unknown                |
| Attorney Docket Number | AMAT/8830/FEP/PCVD/PJS |
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|                    |                       | Number-Kind Code <sup>2</sup> (if known) |                                |                                                    |                                                                                 |
|                    | A37                   | US-20020093042                           | 07/18/2002                     | Oh, et al.                                         |                                                                                 |
|                    | A38                   | US-20020022294                           | 02/21/2002                     | Hawryluk, et al.                                   |                                                                                 |
|                    | A39                   | US-20020019148                           | 02/14/2002                     | Hawryluk, et al.                                   |                                                                                 |
|                    | A40                   | US-20010055672                           | 12/27/2001                     | Todd                                               |                                                                                 |
|                    | A41                   | US-20010046567                           | 11/29/2001                     | Matsuki, et al.                                    |                                                                                 |
|                    | A42                   | US-20010024871                           | 09/27/2001                     | Yagi                                               |                                                                                 |
|                    | A43                   | US-20010020712                           | 09/13/2001                     | Raaijmakers, et al.                                |                                                                                 |
|                    | A44                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A45                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A46                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A47                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A48                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A49                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A50                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A51                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A52                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A53                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A54                   | US-                                      |                                |                                                    |                                                                                 |

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|                    | B11                   | JP 62-171999 (Abstract Only)                                                      | 07/28/1987                     | Nippon Telegr & Teleph Corp.                       |                                                                                 |                |
|                    | B12                   | JP 58-098917 (Abstract Only)                                                      | 06/10/1983                     | Matsushita Denki Sangyo KK                         |                                                                                 |                |
|                    | B13                   | JP 2001-189312 (Abstract Only)                                                    | 05/02/2001                     | Motorola, Inc.                                     |                                                                                 |                |
|                    | B14                   | JP 2001-111000                                                                    | 04/20/2001                     |                                                    |                                                                                 |                |
|                    | B15                   | JP 05-102189 (Abstract Only)                                                      | 04/23/1993                     | Fujitsu, Ltd.                                      |                                                                                 |                |

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|                    | A55                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A56                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A57                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A58                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A59                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A60                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A61                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A62                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A63                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A64                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A65                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A66                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A67                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A68                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A69                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A70                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A71                   | US-                                      |                                |                                                    |                                                                                 |
|                    | A72                   | US-                                      |                                |                                                    |                                                                                 |

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|                    | B16                   | JP 05-047665 (Abstract Only)                                                      | 02/26/1993                     | Fujitsu, Ltd.                                      |                                                                                 |                |
|                    | B17                   | JP 03-286522 (Abstract Only)                                                      | 12/17/1991                     | NEC Corp.                                          |                                                                                 |                |
|                    | B18                   | JP 02-172895 (Abstract Only)                                                      | 07/04/1993                     | NEC Corp                                           |                                                                                 |                |
|                    | B19                   | JP 01-270593 (Abstract Only)                                                      | 10/27/1989                     | Fujitsu, Ltd.                                      |                                                                                 |                |
|                    | B20                   | EP 1 150 345                                                                      | 10/31/2001                     | ASM Japan K.K.                                     |                                                                                 |                |

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## NON PATENT LITERATURE DOCUMENTS

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|--------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                    | 1                     | Choi, <i>et al.</i> "Stability of TiB <sub>2</sub> as a Diffusion Barrier on Silicon," J. Electrochem. Soc., Vol. 138, No. 10, October 1991                                                                                                                    |                |
|                    | 2                     | Debusschere, <i>et al.</i> "Importance of determining the polysilicon dopant profile during process development," J. Vac. Sci. Technol. B 14(1), Jan/Feb 1996                                                                                                  |                |
|                    | 3                     | Earles, <i>et al.</i> "Nonmelt Laser Annealing of 5-KeV and 1-KeV Boron-Implanted Silicon," IEEE Transactions on Electron Devices, Vol. 49, No. 7, July 2002                                                                                                   |                |
|                    | 4                     | Jeong, <i>et al.</i> "Growth and Characterization of Aluminum Oxide Al <sub>2</sub> O <sub>3</sub> Thin Films by Plasma-assisted Atomic Layer Controlled Deposition," J. Korean Inst. Met. Mater., Vol. 38, No. 10, Oct. 2000                                  |                |
|                    | 5                     | Jeong, <i>et al.</i> "Plasma-assisted Atomic Layer Growth of High-Quality Aluminum Oxide Thin Films," Jpn. J. Appl. Phys. 1, Regul. Pap. Short Notes, Vol. 40, No. 1, Jan 2001                                                                                 |                |
|                    | 6                     | Lee, <i>et al.</i> "Cyclic Technique for the Enhancement of Highly Oriented Diamond Film Growth," Thin Solid Films 303 (1997) 264-269                                                                                                                          |                |
|                    | 7                     | Paranjpe, <i>et al.</i> "Atomic Layer Deposition of AlO <sub>x</sub> for Thin Film Head Gap Applications," J. Electrochem. Soc., Vol. 148, No. 9, Sep. 2001                                                                                                    |                |
|                    | 8                     | Talwar, <i>et al.</i> "Junction sealing using lasers for thermal annealing," Solid State Technology, Vol. 46, Issue 7, July 2003                                                                                                                               |                |
|                    | 9                     | Yamshita, <i>et al.</i> "Kinetics of Boron Activation by Flash Lamp Annealing," Extend Abstracts of the 2003 International Conference of Solid State Devices and Materials, Tokyo, 2003, pp. 742-743                                                           |                |
|                    | 10                    |                                                                                                                                                                                                                                                                |                |
|                    | 11                    |                                                                                                                                                                                                                                                                |                |

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